



Join ACM's S.T.E.A.M. Team:

Take the March Madness Monster Monday's Sundae Challenge!
(Try to say that fast 3 times!)

Plan – Design – Make – Test – Evaluate

This Week's Challenge: *Can you make your own homemade ice cream?*

Using the ingredients listed below:

plan, design and create your very own homemade Monster Ice Cream Sundae!

What you will need:

*1 cup milk *1 tablespoon sugar *½ teaspoon vanilla *any of your favorite toppings
*1/3 cup salt *Ice *1-gallon Ziploc bag *1-quart Ziploc bag *warm gloves or a small towel

Plan & Design:

1. Think about your favorite toppings and make a list.
2. Which toppings do you have on-hand?
3. What toppings will you choose?
4. What will inspire your creation? *BE CREATIVE!*



Create:

1. Pour the milk, sugar, and vanilla into the smaller, quart-sized bag.
2. Fill the larger, gallon-sized bag $\frac{3}{4}$ full of ice, then add the salt to the ice.
3. Place the smaller bag inside the larger bag and close the seal. **Make sure that both bags are sealed tightly!**
4. Now quickly shake the bag for approximately 5 minutes, or until the solution is firm. (TIP: You'll need to wear gloves or hold the bag with a small towel ... because it gets **REALLY COLD!**)
5. Rinse the small bag off with cold water before opening to keep the salt water from getting into your ice cream.
6. Place your ice cream in a bowl or a cone
7. Add your toppings

Once created, put your design to the test!

Test: Taste!!

Evaluate:

1. On a scale from 1 – 10, (*with 10 being the best ice cream you've ever tasted*), how does your homemade ice cream sundae rate?
2. What factors affected your results?
 - a. The choice of ingredients?
 - b. Because it was fun to make it yourself?
 - c. Any others?
3. Did your solution firm after 5 minutes? If not, how long did it take and WHY?
4. What could you have done differently?

WHY IT WORKS: The Science behind it:

When ice starts to melt, it is 32 degrees. This is not cold enough to freeze ice cream.

Adding salt, brings the temperature of melting ice down below 10 degrees Fahrenheit (F).

Heat flows from the ice cream ingredients to the melting ice. The melting ice warms up while the ice cream becomes cold enough to freeze.

Shaking the bag does two things:

1. It brings warmer ingredients in the middle into contact with the cold outside and speeds up the freezing process.
2. It makes the liquid ingredients mix with air. The air makes the ice cream soft and light- enabling it to be soft enough to eat with a spoon even though it is frozen!

Vocabulary: *Freezing:* Changing from liquid to solid state when temperature is lowered.

-60 Second Science PBS

Don't forget to share your photos!!



Next time you're at the museum, try a new 'recipe' at Grammie's Kitchen!

Planning a party? Check out our facilitated Party Pleaser Add-ons: <https://akronkids.org/birthdayparties>